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ABSTRACT

This paper summarizes the research and practice associated with the use of new information media and technology with Hispanic populations in the United States, and presents a case for making effective use of communications tools such as the microcomputer and videocassette recorders for improving the educational level and socioeconomic status of Hispanic populations. References are made to the growing size of the Hispanic populations in the United States, and their likely development into a majority population by the year 2015 and beyond. (66 references) (Author/EW)

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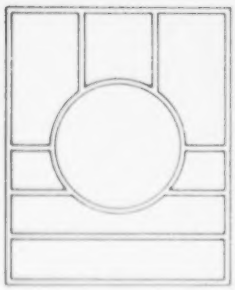

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Sharpening the Issues and Shaping the Policies: The Role of the New Information Media and Technology within the U.S. Hispanic Community

by

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Sharpening the Issues and Shaping the Policies:
The Role of the New Information Media and Technology
within the U.S. Hispanic Community

Hispanics and the New Information Technology: The Background Context for Policy Analysis.

It is not clear in which ways the new technological developments in the means of communication, knowledge, and information exchange will affect different segments of society. Increasingly more miniaturized, more sophisticated, easier to use, and more affordable for the average consumer, the new information media are equated as having the same type of impact on our society that the pencil had on writing or that the proverbial, all-American hamburger continues to have on the world's cuisines. Most experts agree that the new information technology is not a passing fad; it, and all of its ramifications, is here to stay. This persistence, no doubt, accounts in part for the renewed interest in studying and analyzing the social effects of the new information technology.

Interest in the social effects of electronic communication technologies--going back to the introduction of the telephone, followed by the beginnings of the radio and the television eras--historically has been derived from a sense of their newness and our need to become comfortable and familiar with them (Schramm, 1977; 1981). Hindsight, that comes with use and familiarity, not foresight, has helped us, consequently, to understand the principal effects of each succeeding communication medium on a particular population and in a given situation. This hindsight has sensitized researchers and policy analysts to what futurist Christopher Dede (1985) has called the "parking lot" syndrome--that is, concentrating not on the particular gadget or hardware, but rather on what happens to us because of the gadget. For example, on the upside of the equation, the automobile has promoted modernization and social change; and on the downside, the automobile has produced highway traffic congestion, stressful, often bumper-to-bumper freeway commuting, and the monopoly game of hunting and pecking for a place to park the car.

Today, new communication media and technology, and the concomitant considerations of policies and the effects on society that surround their use, are not unlike the automobile analogy of Dede (1985). Hardware, such as the microcomputer and related interactive video, laser, and fiber optic technology, cable television, compact audio and video disc systems, satellites, cellular and high-tech telephones, and the highly sophisticated robotics and artificial intelligence advances linked to electronic and telecommunication media are gradually becoming commonplace items in the workplace, the classroom, and, indeed, the home (Ancarrow, 1987; Rogers, 1986; Singleton, 1986; Meyrowitz, 1985; Paisley, 1984; Green, 1983; Zorkocy, 1982; and Schramm, 1981).

Many believe that an individual's chances in life and eventual social and economic well-being are directly linked to the ability to use the new information technology. Consequently, their concern for the issues of equity and access vis-a-vis the new information technology has led some to suggest that our society is becoming stratified along the lines of electronic access to knowledge and the new technological information resources. The terms "information rich" and

"information poor" (Childers and Post, 1975) have been coined to describe this new equity and access debate.

Two questions, which are the recurrent themes of this paper, are of particular importance to the debate (Golding and Murdock, 1986):

1. How will developments in new communication technologies, and more generally in their patterns of use for cultural, educational, business, and related information services, affect patterns of social inequality?

2. How can we use, and provide access to, the new communication technologies to ease current and future socioeconomic disparities between and among the so-called "information rich" and "information poor"?

Of particular concern to this debate is the segment of the U.S. population generally identified as the "information poor"; they are the nation's low-income ethnic, language, and cultural minority groups. American citizens of Cuban, Puerto Rican, Latin American, Spanish, or Mexican ancestry, classified as Latinos or Hispanics, are a rapidly growing segment of this population.

A decade in which Pac Man, other video games, and the microcomputer appeared on the cover of Time Magazine as "man of the year", the eighties were also heralded as the "decade of the Hispanics." In 1987, Hispanics represented approximately 10 percent of the total U.S. population, or about 20,000,000, and this community is growing at an annual rate that is nearly six times greater than that of the nation's non-Hispanic population (Rochín, 1987). Hispanics, as a population group are also relatively youthful and have high fertility rates. The median age for Hispanics in 1987 was 23.7 years, as compared with 32.2 years for non-Hispanics, and they produced an average of 86.1 births per 1,000 in 1986 (Rochín, 1987). Research scholars and the popular press have given further attention to Hispanics by publicizing the marginal educational, social, and economic conditions that Hispanics traditionally share with other minority groups in the United States.

Romo (1987), Rochín (1987), and Ballesteros (1988) have analyzed the educational, economic, and social well-being of the Hispanic community in the United States. Along with a report from the Center on Budget and Policy Priorities (1986), they conclude that no other racial or ethnic group in the United States is faring as badly as Hispanics. The American dream of socioeconomic success, they conclude, is becoming increasingly elusive for Hispanics, and the trend is likely to worsen because of factors related to, among others, schooling and family.

Hispanic educational drop-out rates are over fifty percent. In essence, half of all Hispanic youngsters that enter school do not graduate with a diploma (Rodríguez-Ingle, 1987). To these conditions must be added the fact that over 5.2 million Hispanics in the United States are living in poverty, and this number is growing rapidly because Hispanics are relatively young, under-educated and have relatively large families and high fertility rates. What is more, large numbers of legal and undocumented immigrants are entering the United States and trying to adapt to the different, economic, social, cultural, and educational conditions of the American information society. The first language of these immigrants is Spanish,

not English (Rochín, 1987). Collectively, it is estimated that the spending power of Hispanics is about 134 billion dollars a year (Haithman, 1988).

Demographic statistics and population growth trends released by the U.S. Census Bureau (Series P-25, No. 995, 1986) estimate that the Hispanic population will double in the next eighteen years and possibly triple shortly thereafter. Hence, Hispanics will probably stop being the minority and become the majority population in the United States within the next thirty years.

As a group, Hispanics represent both a promise and a dilemma for the United States, a country that is increasingly diverse, culturally and ethnically, and whose Anglo population is increasingly childless and older. It is no wonder, therefore, that the need for innovative approaches to improving the status of Hispanics is receiving increased attention. Hispanics will need schooling, employment, and training opportunities if their presence is to benefit the United States.

If Hispanics become the majority, then the economic future of the United States is dependent, more than ever, on the educational opportunities the society extends to all Americans. Education is one way to ensure that more minorities take an active, participatory role in society.

Among the innovative approaches that might be considered to improving the conditions of Hispanic Americans is the creation of opportunities for using the new information technologies not merely as entertainment media outlets, but also as tools for exchanging communication, knowledge, and information across long-standing barriers of ignorance, geography, language, cultural, and economic diversity.

The following pages outline an array of the emerging issues and concerns that should be at the forefront of a policy inquiry into the role of new information media and technology within the Hispanic community in the United States. This working paper discusses possibilities geared to incorporating these new technological tools into a more comprehensive educational, social, and economic agenda for policymakers. If information technology is part of the answer, what then are the questions to consider in advancing information technology as a solution to improving the conditions of Hispanics? Let us look at them.

The Case for Information Technology: The Workplace, the School and the Home.

Annual sales of personal computers in the U.S. are estimated at 10.5 million for 1988 (Future Computers, Inc., 1987). Many believe that this new information technology can significantly improve the quality of work, strengthen and redefine teaching and learning, and electronically expand opportunities for exchanging communication, knowledge, and information across a variety of population groups and geographical settings. These computerized, electronic, and technological environments are heralding a variety of opportunities and reasons for communicating that enable people to access, create, transform, package, and transmit knowledge and information in a seemingly endless array of patterns across a multitude of intellectual, language, cultural, and geographical boundaries. For example, in using word processing, database or decision-support management systems, and other administrative applications tied to the new information technology, the computer can become a powerful tool for simulating reality,

thinking, verbal and visual expression, creativity, and for communicating across distances, time barriers, and historically defined settings of ignorance and isolation. In programming a computer, people can experience the process of creating and learning for themselves; this, in turn, can enhance their intellectual development and encourage them to think and express their ideas, feelings, and perspectives in new ways. Also, because of their abilities to instantly transmit information over great distances, the message can come to the audience where ever it may be, as opposed to the audience physically going to the source of message.

In the workplace, the concepts of telecommuting; computer, video, and audio teleconferencing; videotex and teletext; integrated electronic information networks; and complex technology-based management, training, and decision-support systems have moved from being novelty, experimental topics reported in professional journals to becoming common, daily reality for many. Most major business corporations in America also use new information media for upgrading and developing employee skills. Business could apply the media to upgrading the literacy and English language skills of their Hispanic workers and to teaching a variety of job skills to move Hispanics from jobs in the entry, lower, and middle levels to more responsible and better-paying positions. A powerful and effective linkage, therefore, could be forged for Hispanics between learning and work environments.

Naisbitt (1988) has reported that working at home--a 1980's phenomenon brought on by the personal computer--is likely to spread from white-collar workers to other levels of the labor force. Over a million consultants, accountants, architects, engineers, private investigators, stockbrokers, urban planners, newsletter publishers, authors, teachers, scholars, and other professionals now work out of their home. Naisbitt (1988) has estimated that by 1990, the number could reach 13 million, almost 11 percent of the American work force. About 350 companies (including large employers like J.C. Penney, American Express, and IBM) allow some of their employees to telecommute or work at home with office-linked computers and telephones. In the last six years, the number of telecommuters has skyrocketed from about 20,000 to more than 600,000.

In 1986, at-home workers bought more than $15 billion worth of office products (Trend Newsletter, March 1988), and by the end of 1988, sales could reach $20 million. Perhaps the same technology could also create educational, training, and employment opportunities for Hispanics who are confined to their homes because of age, family responsibilities, unemployment, literacy or language barriers. Various developing countries have experimented with communication technologies for this purpose (Schramm, 1973; Tietjen and Black, 1987; Mayo, et al. 1987), and the experience would be of great relevance to advancing the conditions of Hispanics in the United States.

At home, the new information technology is also affording some segments of the American population (albeit, the more affluent and educated) the convenience of a variety of electronic services. They include home banking, catalogue department store shopping, booking airline reservations, using experimental and diagnostic medical and health care services, receiving messages and mail electronically, computer conferencing and networking, taking home correspondence courses in a variety of technical and professional fields, receiving electronically transmitted newspapers, magazines, journals, and newsletters. These technology-based systems also facilitate access from one's home to an almost infinite array of information data bases on professional, financial, and business

concerns, athletic, sports, leisure time interests, and educational and consumer topics. In addition, there are automatic control appliances and asynchronous monitoring of lighting and lawn sprinkler systems as well as other home and business security systems. Disparity in home access to personal computer technology, however, does exist. The Wall Street Journal (August 16, 1988) reporting on a 1988 Gallup Poll shows 46 percent ownership of personal computers among higher-income households (more than $60,000 annually), compared with 10 percent of lower income homes (income of less than $20,000 annually).

Furthermore, "telephone lines are about to get busier" and expand the equity-access debate (Amparano, 1988); a wide variety of electronic information services will soon be available to households as a result of recent federal court rulings. This will provide for a central and inexpensive information pipeline into every home and workplace that has a phone. It can facilitate everything from pay-for-view television programs to electronic voice mail, which will record and send out telephone messages (bilingually), to the sending of documents from one computer to another using one phone number and eliminating costly computer peripherals, as well as the need for computer hardware compatibility. It also is expected that "by dialing one number--and using even the most basic of computers tied to the phone--people will have access to more than 1,000 data banks. Callers will pay for only what they use; there will be no subscriber fees, passwords or compatibility problems that currently exist with some electronic bulletin boards" (Amparano, 1988).

In the classroom, the new information technology might provide special help for, and powerful motivation to, students who either are not getting help now or who need tailor-made assistance. The concept of technology solutions for "at risk" students is being discussed at all levels of the educational system. Recent survey data from the Office of Technology Assessment, U.S. Congress (OTA, 1987), on the perceptions of teachers and principals about the effects of computers, further substantiates these impressions and indicates that computer use in education has hardly begun to realize its potential and promise. The survey findings further suggest that, uppermost, computer use is perceived to:

1. raise enthusiasm of all students for content areas or subjects in which computers are used; and

2. be better at helping below-average students learn than to help average or above-average pupils.

At institutions of higher education, it has been reported (Herman, 1988) that at least twenty universities each have an annual computing budget of between 25 million dollars and 50 million dollars, and an additional 100 institutions annually budget 20 million dollars for computers and related telecommunication technology.

The central questions, therefore, are not whether to use computers, but what brand should one buy and how should one best use a computer. What's more, according to Plus Magazine, the college guide to consumer electronics (Cass, 1987), experts say that today's electronic boom is just the start of a lifetime revolution in the way we will learn, work, and live. By 1997, they predict that one might be able to "try on" clothes at home and "commuting" to work may mean a walk into the den to a computer work situation electronically linked to your office a few miles away.

Will it all happen? What are the electronic changes we can realistically hope to use? And who will most benefit from these revolutionary developments? These are essential questions requiring careful thought and analysis in the context of equity and access considerations.

Hispanics as Media Consumers: Hindsight Perspectives and Future Predictions

Recent writings on media and Hispanics (Valdéz, 1985), and on the use of computers and telecommunications technology in multi-cultural settings (Cummins, 1986), have played a significant role in making us more aware of both the inequity and the potential associated with the use of communication media and technology with minority populations.

When one looks at the new information technology in terms of the U.S. Hispanic community, perhaps our most reliable guide, therefore, is hindsight--that is, lessons learned from the use of other media within the Hispanic community. Our most reliable guides for this purpose, based on advertising and survey media research data, are the experiences with the Hispanic print media sector and the video cassette industry. Let us look at each of these areas in terms of their relevance to possible programs and policies for the future use of new information technology within the U.S. Hispanic community and likely beneficial linkages to other Latino populations worldwide.

Collectively, it is estimated that Hispanics in the United States spend about 134 billion dollars a year as part of this nation's economy (Haithman, 1988), and as a result, print, video and other media providers are looking at this market with special interest. The current interest focuses on print media and video, and observers have commented (Haithman, 1988) that they would be silly not to pursue the Hispanic market.

The Hispanic Experience with Video

In the video field, it was just a decade or so ago (Shannon, 1987) that Sony first introduced the videocassette recorder with a $1,500 price tag (as opposed to $150 to $300 today) and ten years ago, the experts did not think the VCR would turn up in more than 15 percent of American households. How wrong they were both for the U.S. population in general and the Hispanic community, in particular. In the United States, over 48 million American homes, almost 50 percent of all American households, own a VCR, and video stores are today renting and selling more than 7.2 billion dollars worth of video cassettes for home viewing (Shannon, 1987).

It has been estimated (Los Angeles Times, 1987) that just under 25 percent of Latino households have access to a VCR, and according to Marla Hickman, director of videoclub operations for Erol's, headquartered in Springfield, Virginia, the average Hispanic household with a videocassette recorder/playback unit rents 10 videotapes a month, compared to six times a month for the average Anglo household. Erol's is the nation's largest chain of company-owned video stores with 14 outlets in the predominantly Hispanic neighborhoods of Philadelphia, Chicago, Detroit, and Washington, D.C. This Hispanic video distribution effort started

about two years ago, according to Jack Schember, managing editor of Video Store Magazine. In 1985, Schember states that there were no companies releasing Spanish-language videocassettes. Today, there are about forty, and the number of outlets is growing side-by-side with the significant penetration of Spanish-language television in the thirty top cities on the West Coast, the Eastern seaboard corridor and several mid-western and southwestern states with a large concentration of Hispanics. Wholesale sales to retailers of Spanish-language videocassettes reached 6.5 million dollars last year at the Houston-based East Texas Distributing Company, the largest distributor of Hispanic videotapes to retailers. This figure is expected to grow at least 30 percent in 1988 (Bradsher, 1987).

Three problems are cited in Bradsher's survey research as hampering the sales of Hispanic video materials:

1. video store buyers and managers often are unfamiliar with the Hispanic market and buy all their videos from a single studio rather than buying the current Latino hit videos from each of the various studios;

2. stricter enforcement of U.S. immigration laws has made illegal aliens wary of filling out paperwork for video rental cards and consequently, there is diminished use of videos by this segment of the Hispanic population; and

3. advertising by studios for their Latino tapes has been minimal, even for videos like "Arizona," one of last year's biggest box-office films in Mexico, that also fared very well in the movie theaters in the United States.

Other marketers, such as the Portland, Oregon-based National Video, have been quick to learn from this situation. They are launching the largest effort to court the Hispanic market. Jointly with the Los Angeles-based Univisa, National Video plans to open 600 franchise stores by 1993 in Hispanic areas nationwide. Furthermore, all signs, training programs and advertising for the stores will appear in both Spanish and English, and at least one-third of each store's 3,000 video titles will also be in Spanish. A similar effort is planned for the Los Angeles area, which has among the highest concentration of Hispanics in the United States, and according to the A.C. Nielson Company, the Los Angeles metropolitan area has the third highest percentage of television-owning households with VCRs in the nation (currently estimated at 62.2 percent by Nielson and in the top three with Anchorage at 70.6 percent and Las Vegas with 63.3 percent of households with VCRs).

Attempting to capitalize on a multi-media approach for reaching the large Spanish-speaking communities in Los Angeles and six other major American cities with a large Hispanic community, CBS Television launched the ill-fated "Trail and Error" comedy series (Haithman, 1988) featuring the story of two Latino friends in Los Angeles, and staring comedian Paul Rodrlguez and actor Eddie Velez.

Unlike ABC Television, which recently shelved "Juarez", that was to have been the first dramatic TV series with a predominantly Hispanic cast (Valle, 1988), CBS Television and Columbia Pictures in cooperation with Spanish-language radio stations in each city at least aired a handful of the programs developed for "Trial

and Error." It was the first network situation comedy to be simulcast in Spanish. Along with Spanish language radio stations in Los Angeles, stations in Houston, Chicago, San Antonio, Albuquerque, Tampa and Tucson, all cities with large Spanish-speaking populations, carried the simulcast program with a radio sound track in Spanish. Columbia Pictures and CBS Television believe that simulcasting in the Spanish and English language can provide advertisers with a unique link to the growing community of Hispanic consumers. They cite several socioeconomic factors which motivated this action: Hispanic population figures of 20 million; the fact that the community is growing at six times the rate of other ethnic groups; and the $134 billion dollars which Hispanics collectively spend in the United States.

This then is the recent history with video and Hispanics. It is largely positive and highly lucrative.

Hispanic Print Media

Futurist John Naisbitt (Trend Newsletter, October 15, 1987) recently has reported on the changing profile of Hispanic print media in a growing U.S. minority market. According to Naisbitt: "The U.S. Hispanic press, once viewed as a slow-growth novelty characterized by inexperienced management and unimpressive circulation, is fast becoming one of the nation's most important media outlets (p. 4)."

From an advertiser's perspective, Spanish-language newspapers, according to Naisbitt, are an affordable direct link to a market whose annual purchasing power is now in the billions. For investors, the Hispanic print industry is wide open, and it is unlike the increasingly competitive radio and television industries.

Nowhere are the opportunities more evident than in Dallas, Texas, with a Hispanic population of 400,000, or Miami with 700,000, or Los Angeles, with a census count of 3 million Hispanics. It is reported (Trend Newsletter, Bellwether News, 1987), that during 1986 and 1987, the actual number of Hispanic papers in Dallas has jumped from one to five: TV Guia en Espanol (circulation of 20,000), El Extra (15,000), El Hispano (10,000), El Sol de Texas (10,000) and El Mexicano (6,000).

The editorial content of each of these newspapers differs, but their owners all feel confident that they can capture a significant percentage of what is described "as a formerly ignored or undervalued readership and advertising market." For example, El Extra, a weekly that targets recently arrived immigrants from Mexico and Central and South America, has shown a profit in less than six months of operation, a feat that Naisbitt (1987) reports is almost unheard of in the slow-growth publishing industry. In Miami, it is further reported by Naisbitt (1987), the incredible economic, social and cultural impact of the Hispanic community has forced the 76-year-old Miami Herald-- seen by some as the symbol of the city's old Anglo guard-- to shift its attention to this burgeoning market.

The Herald not only hired its first Cuban editor last year, according to Naisbitt (1987), but it began putting more emphasis on hiring bilingual reporters fluent in Spanish and sensitive to Hispanic issues and concerns. It also is upgrading its Spanish-language section, "El Herald," and Naisbitt reports that there is talk of expanding this insert section to possibly market it as an independent

newspaper that would compete with a variety of other small, grassroots-oriented Hispanic publications in the area.

In Los Angeles, one publication, La Opinión, has almost exclusively served the huge Hispanic community of about 3 million for more than 60 years. Recently, La Opinión, is being challenged by El Diario de Los Angeles, a new daily founded by Mexican newspaper entrepreneurs. El Diario is courting the transplanted Hispanics who want a "down-home" alternative to La Opinión's Americanized contents. In response to this challenge, La Opinión has expanded its editorial staff, improved home delivery services, spent more than one million dollars to upgrade its presses, and increased its daily run to 150,000 from 90,000 (Naisbitt, 1987).

The prediction is that more Spanish-language newspapers will begin appearing across the United States and not just in cities with "mega-Hispanic populations". It is inevitable, Naisbitt (1987) concludes: "Hispanics are quickly becoming the largest minority in the United States, and spending power of such magnitude, cannot go unnoticed."

This then is the short vignette on Hispanics and print media in 1988. Again, one can conclude from the experience that it is most promising, cutting-edge, and rapidly becoming an economically viable reality. Experiences of this nature further add to the equity-access debate and the increasing interest in using other types of communication media and information technology with Hispanics in a more concerted manner and across school, work and home settings. The use of information technology is growing dramatically in other nations with either total or large Spanish-speaking populations (Ingle, Hitchens and Harris, UNESCO, 1983), and there is ample evidence to attest to its effectiveness as a promoter of social change and innovation (Schramm, 1977). Why not, then, with Hispanics in the United States?

Factors Shaping Policies For The Use of Information Technology Within The Hispanic Community.

The case for new information technology, as reflected in the preceding sections of this document, is certainly a strong and positive one. It also is apparent that there are a variety of communication media that, when used in combination with other media, could make a significant difference in the way Hispanics learn, work and live in the United States. Further, a body of expertise and experience about the use of these technologies is gradually evolving, both in the United States and in other countries, so that the process can be studied systematically and thereby, generate methods to improve the procedures for use and generalize these findings to other settings.

Furthermore, it is apparent from our review that although the society in general, and the Hispanic community in specific, has a great potential for the use of a variety of the new communication media and technology, the potential has scarcely been tapped either in school, work or home settings. Several factors appear to be influencing, for better or for worse, the use of the new information technology by Hispanics, and although not necessarily falling into mutually exclusive categories, these "influence factors" can be grouped under the following four major headings:

- factors relating to the process of planning, financing, implementing and evaluating programs using the new media and technology with minority populations;

- factors concerning the costs, intricacies and competence requirements for use of the new technology per se;

- factors relating to the environmental context motivating minorities to use media, and the relative lack of experience that purveyors of information media and technology have about this environment; and

- factors focusing on the role of the target audience (the Hispanic community itself) in making use of the technology.

Access and equity, however, loom, large in the policy consideration related to all four factors; they are two primary concerns requiring attention before efforts can begin to promote better use of information technology among Hispanics.

Access and Equity as Twin Concerns

It is not clear, as the earlier sections of this paper have indicated, whether all people will have access to the opportunities and potential embodied in the use of the new information technologies. Because the hardware is not available, or because of geographical location, socioeconomic status, gender, race, national origin, or educational, social, and cultural limitations, some people may not be able to benefit directly from them.

Providing people with different kinds of learning opportunities is not a new problem for education, nor is the challenge to policymakers of facilitating modernization and a better quality of life among poverty groups. The problems that schools and government and business policymakers have in reaching out to sparsely populated regions or to the inner-city ghetto and other segregated settings to provide access to opportunities are well documented.

Many schools, for example, track students into various academic programs; academically gifted students, for example, receive different types of instruction from that available to other students. Consequently, the evolution of new information technologies, such as the microcomputer, in education may actually widen and deepen the disparities that exist because of gender, race, socioeconomic status, geographic location, financial and technological resources, or achievement level. Studies from the Office of Technology Assessment of the U.S. Congress (1983; 1987) dramatically raise the issue of equity and access. They highlight reports of male-dominated computer courses, after-school activities oriented to boys, and reliance on drills and practice to teach remedial and low-achieving students, and on the tendency to use more sophisticated, creative software for simulations, problem solving, and creative expression to only teach academically talented students.

Cárdenas (1983) has identified three aspects of inequity in microcomputer use related to low income, inner city and minority students: 1) disadvantaged students and minorities, by virtue of their lower SES scores are the least likely to

receive computer assisted instruction; 2) educational courseware does not adequately reflect the backgrounds, interests or language differences of minority group members; and 3) the more likely use of microcomputers in inner city schools is likely to be restricted to drill and practice exercises. Cárdenas (1983) concludes that "affluent students are thus learning to tell the computer what to do while less affluent students are learning to do what the computer tells them."

March 1987 survey data from the Office of Technology Assessment (OTA, 1987) underscores several dominant themes in the evolving and growing use of technology at home and in schools, both with minority and majority students. Uppermost, the survey concludes that the computer is now seen as a tool for learning, as opposed to an object of study (computer literacy) or for learning programming, and as such, the computer is seen as most valuable when integrated into all areas of the curriculum.

Over 15 million students and 500,000 teachers in public and private schools are cited as now using microcomputer and related technologies. The national pattern, however, is a widespread distribution of the technology to as many schools as possible, rather than a concentration of specific hardware and software to user groups with particular needs. Annual sales of personal computers in the United States, including our schools, are projected to reach an all time high of 10.5 million in 1988 (Future Computers, Inc., 1987). Yet, the pattern of inequity and access persists.

The national average is about 37 students per computer, which means that there is still less than the equivalent of one computer per classroom and significant variations in access by region, school size and by student characteristics, as noted above.

The OTA survey highlights the fact that, despite the widespread diffusion of computers in the nation's schools, there has been a persistent concern with equity of access, particularly in terms of possible differences between the rich and poor, black and white, and boys and girls. Generally, students in relatively "poor" elementary or middle schools have significantly less potential access than their peers in relatively "rich" schools.

There are, therefore, major hurdles to overcome in trying to correct the existing inequities in the system. These corrections according to Hubner and Schultz (1986), take time. They conclude that if there was a program started today to develop support and funding so that every high school and grade school in California would have 20 computers, and then a training program established for teachers to know how to use those computers as a creative learning tool, enabling a student to interact with and guide the computer, it could still take <u>five to eight years</u> just to begin a pilot project. A statewide implementation would take even longer.

There is a real urgency, therefore, to begin now, to fill in the gaps between the low income students, access and those in more well-funded areas. If it is indeed the process takes five to ten years to implement, it would be another five to ten years before we would begin to see these projects bearing fruit. The longer the wait, however, the greater the gap we create.

<u>Home access to equipment</u> is also an important consideration. Students from upper income households with access to computer equipment are able to use

services like the CompuServe Information Service or Dialog to do a far more thorough job on their homework or to receive needed electronic tutoring. A family earning a low or moderate income with money only available for limited entertainment and educational activities requires good reasons to spend it on a computer with telecommunications capability. Families living at the poverty level are currently unable to purchase equipment.

Three other obvious areas that are reported as needing attention (OTA, 1987) to improve the use of this technology and to reach the potential it can offer for Hispanics and other segments of the society are:

1. Training and Familiarization: Expanding the number of computer users with both general and specific computer use training in the application of programs to meet particular learning, work and life styles needs.

2. Software Development: appropriate software is lacking for use with limited English (LEP) populations. This lack of specific software is a barrier to the use of computer technology by LEP populations.

3. Dissemination of Information on Exemplary Practices, Evaluation and Research Findings: Development of technological advances, such as the microcomputer, have positive implications for multi-cultural and LEP populations, and information on these advances needs to be more widely disseminated. For example, low-cost micro chips, which add dual character generation to computer keyboards, can make writing in Spanish or English possible on the same microcomputer; digitized speech and audio devices make it possible to include native language speech output as a part of the microcomputer instructional program; and dual audio tracks on video disc allow instruction of any subject in English and the native language.

Added to these considerations is the fact that the new information technology currently is used with only a small part of the programs for limited English proficient individuals and that software developers and distributors point to the thin markets for bilingual education and ESL materials as inhibiting software development incentives. These factors discourage the investment of developmental dollars necessary to create software to meet the varying needs of LEP students and language minority speakers across the K-12 curriculum.

The Office of Technology and Assessment (1987) suggests that there may be ways around some of these problems, such as seeding small scale development projects and encouraging development of general purpose software that can be customized for different language groups.

The widespread use of new information technology and communication media also argues for the need to know more about how different groups of people are using the technology and why those practices have developed. It is important to analyze the extent to which barriers to technology use exist, what needs are not being met, and what choices can be made to expand opportunities for minorities, and Hispanics in particular, to share in the promise and potential of the new information technology.

Underscoring the promise and potential is a changing array of more affordable versions of these communication tools available to us both as professional communicators and consumers of media. We need to be aware of these developments to better promote opportunities for using communications media and technology to exchange information and knowledge. **Seven developmental trends** are of particular importance to track, as they relate to the twin concerns of equity and access (Ingle, 1986):

1. **a gradual shift** in U.S. society **from** an all-encompassing reliance on **mass media** (radio, television, and print) as systems for delivering information, entertainment, and cultural upgrading **to the use of media in more personal, individual ways as personal media** (e.g. from TV to video-cassette-player; from mainframe computer to microcomputer; and from radio to audio cassettes and compact discs in the home, at work, and in the classroom);

2. **a growing public awareness of the value and utility of information as a commodity** that an individual--on his own--can access, create, or exchange using new personal technologies, such as the microcomputer or the new telephone capabilities, within the confines and convenience of his home or work setting;

3. **increased use of communication media and technology in various management and administrative functions** and in professional information exchange networking activities across geographical distances and national borders;

4. **a gradual blurring of the distinctions between and among existing communications media** as technologies integrate attributes of old media to form new types of information products and services, such as electronic newspapers that are accessed over new and existing media (the telephone, microcomputer, and television monitor);

5. **a growing simplicity in the design (user friendly) of communication technology and media products** so that their use, availability, and affordability make more sense for both the communications practitioner and the average citizen;

6. **a growing trend toward developing locally produced and custom-designed media products targeted at specialized, segmented audiences** for the teaching and learning, entertainment, and professional requirements of diverse users (the elderly, women, the disabled, minorities, the sports athlete, the scholar, etc.) and;

7. **a concerted societal push for information media competence** in general and technology literacy **as a critical, basic education skill** for both consumers and professionals in the communications industry.

These projected trends, changes, and developments represent an agenda for action among the various communication technology stakeholders. They are cited as a challenge to policymakers to consider applications of these media and technology in responding to the educational and economic-related needs of the Hispanic community.

Cooperation Between Education and Public-Private Sector Partnerships: A Necessary Ingredient for Technology Access and Equity.

Education in the United States has traditionally prepared young people with a common set of skills, knowledge, and values. Schooling has been viewed as an enabling force that permits the next generation to enter the world of work, to share in the socioeconomic development of society, or to take advantage of advanced training and educational opportunities. At a minimum, schools were expected to prepare young people to function as fully, equal members of society. For many students, and in particular for Hispanic and other minority children, these goals are not being met and a great disparity exists in the quality of the American educational system. This perception has led to calls throughout the American educational system for educational reform and to the development of public-private sector cooperative partnerships for this purpose.

In **Transforming American Education: Reducing the Risk to the Nation** (Washington, D.C., April 1986), its final report to the U.S. Department of Education, the National Task Force on Educational Technology concluded that one vitally important avenue to educational improvement is based on technology and the involvement of business and industry in this effort: "Through its range and power, technology-based education can promote the transformation in quality that American industries will need to achieve in the years ahead. It is imperative that education and industry work together to achieve this end".

More recently, Lewis J. Perelman in **Technology and the Transformation of Schools** (1987), published by the Technology Leadership Network of the National School Boards Association, presents two visions of the future of education and the new information technology:

In the first vision, "schooling is transformed through the use of emerging informational technologies and public-private sector partnerships in a radically restructured educational system; in the other, 'business as usual' leads to an increasing gap between the rich and the poor and an 'absolute national emergency' in education and the economy" (Education Week, January 13, 1988).

It is no wonder, therefore, that studies similar to those reported above have added to the equity-access debate and stimulated interest in working cooperatively with industry to make use of microcomputers in all types of elementary, secondary, and postsecondary educational institutions more widespread. The use of microcomputers, as well as other new information technology, is growing dramatically, as a result, both in the United States and throughout the world (Ingle, Hitchens, and Harris, UNESCO, 1983). A significant portion of the new information technology in the schools, as earlier cited, is the result of private-public sector cooperative arrangement involving companies such as Apple, Digital, Radio Shack, IBM, and Tandy and associations such as Computer-Using Educators (C.U.E.).

Illustrative of this private-public sector cooperation in education is the **Apple Computer Company's corporate grants program** (Apple Computer, Inc., 1988).

Education affairs was initiated in 1979--just two years after the founding of Apple--as the Apple Education Foundation. From 1979-1982, approximately 170

grants were made to educators to develop model educational software some of which has since been marketed by third-party vendors. These awards were followed by a series of grants (entitled "Teachers Can't Wait" and "Wheels for the Mind") which fostered the use of computers in the classroom as intellectual tools. These projects involved collaborations between elementary and secondary schools and nearby colleges or universities.

In 1987 and 1988, largely in response to a concern over equity and access issues, Apple made awards to support 45 projects under the grant cycle called "Next Steps" and "Equal Time." These projects are serving student populations that historically have had limited access to computer technology in traditional classroom settings. These groups include linguistic and ethnic minorities, the economically disadvantaged, the disabled, and female students studying math and science. Several of these efforts are aimed at Hispanic students.

Since 1983, almost 90 major projects throughout the United States have been supported by Education Affairs grants. The total value of equipment donated since 1979, including computers, printers, modems and software, is over $7 million dollars. To this effort must be added Apple Classroom of Tomorrow (ACOT), which is a working partnership among the Apple Computer Company and seven public school classrooms across the United States in which each student and each teacher has their very own computer for use at school and a duplicate system at home. These seven settings, and the over 300 student and teachers involved in the program, represent what Apple calls "living laboratories for long-range, action research to study the use of computers in a combined home and school setting".

The objectives of ACOT, as outlined by Apple are:

- to capture critical knowledge about the integration of computers and related technology into instruction across the curricula in the classroom and the home.
- to identify and solve many of the problems of computer implementation in our society, and in specific, the classroom.
- to discover new and productive hardware and software development.
- to disseminate program findings to many stakeholders in the education process: parents, policymakers, educators, and hardware-software developers.

Conclusions and Implications

The issue of equitable access to the new information media and technology by Hispanics and other minority groups, as this paper has documented, has far-reaching implications for our nation as a whole. It is a particularly significant issue for minorities because of the majority role envisioned for Hispanics and other minority population groups in the society and the future work force. With the existing and continuing spread of the new information technology at work, school, and in the home, we all need to learn more about the technology to assume positions of leadership and expertise in guiding its evolution and service for the best benefit to the society. Numerous scholars and researchers cited in this

document are warning us of the dangers inherent in widening the existing gap between the so-called "information rich" and "information poor" segments of our society unless constructive and systematic intervention approaches are implemented to curb and reorient the current trends. Studies cited in this document confirm the extent of these inequities in terms of access and use of the new information technology by minority populations.

In the next generation, the majority of the work force will be women and minorities (Karoff, 1984), and Hispanics will predominant in this group. It has been argued rather convincingly that for the well-being of the United States, this future work force, therefore, must be included among the technologically-oriented society or else we stand a serious risk of relegating them to a "permanent underclass" of the future (Paisley, 1984; Karoff, 1984; Castillo, 1984; and Eucher, 1983), and this in turn can be socio-economically detrimental to the U.S. society as a whole.

Schools, communication media and other information systems of the society, employers, government agencies, and philanthropic organizations need to reorganize and evolve in their priorities, policies and resources to work collaboratively to meet this information technology challenge. Because of the growing relationship of the new information technology with schooling, home and work, the processes of learning and working, both as separate activities and the environmental settings in which they are carried out in today's society, need to be redefined to integrate as one central activity that Paisley (1984) has called learning work. Learning work is described as the integration of education and employment functions to respond to the expected continuous and dramatic changes in the technological content of work and the technological context of everyday life. The center of tomorrow's society will in large part be communication, information, and knowledge exchange. Productive work ideas, concepts and information, to cite Peter Drucker (1969), rather than manual skill or brawn, will have to predominate.

Such a context, this paper concludes, will require a concerted and sustained role of local, state, federal and private sector industry partnership resources. In concert, they and the Hispanic community, need to address the complex policy questions that exist with regard to creating access to the new technological learning environments that will, in turn, open opportunities to future work and socioeconomic well-being. To make this technology use effective, therefore, will require what has been called (Rawitsch, 1988) the obvious--hardware, software, peopleware, materials and training--as well as the less obvious, but just as important, resources of long-range planning, sustained and sincere commitment to remedying current conditions, and time and opportunities to experiment with new possibilities and to exchange information and learn from on-going experiences.

The Hispanic community also needs to be involved in this process, both as users and developers of the technology. Hispanics are the nation's future stakeholders, and they need to feel that their presence is not only a benefit to the country, but that they as a community will make the difference in the future of the society.

This will require changes involving personal redefinitions (Cummins, 1986) in the way many in the U.S. majority population think about minorities in general and Hispanics in specific. In other words, to paraphrase Cummins (1986), legislative and policy reforms may be necessary conditions for effective change, but they are not sufficient. Implementation of change, as it relates to Hispanics

and the new information technology, will be dependent upon the extent to which the U.S. society, both collectively and individually, redefines its role with respect to minority populations and evolving power relations within the society as a whole.

New technologies do not effect social and economic change by themselves; they, as Paisley (1984) and other communications scholars have concluded, are primarily play things until innovative and motivated organizations and individuals transform their use into applications and solutions for particular problems and difficulties. This, then, is the challenge in shaping the policies and sharpening the issues that will better define the roles for the new information technology within the Hispanic community.

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